

Key Project Milestones

TABLE 1

Summary of Key ERP Milestones

A Component of the Community Relations Plan Update, Travis Air Force Base, California

Milestone	Year(s)
Travis AFB named to National Priorities List	1989
FFA signed	1990
FFA renegotiated to create four (4) OUs	1993
Travis AFB Restoration Advisory Board formed	1995
Central Groundwater Treatment Plant online	1995
Comprehensive Basewide ERA – Tier 1	1995
FFA amended to consolidate NOU, EIOU, and WIOU into the NEWIOU	1995
Comprehensive Basewide ERA – Tier 2	1995
NEWIOU FS	1996
NFA for Sites OT011 and RW012	1996
NEWIOU Groundwater IROD	1997
WABOU FS	1998
South Base Boundary Groundwater Treatment Plant online	1998
WABOU Groundwater IROD	1999
West Treatment and Transfer Plant online	2000
North Groundwater Treatment Plant online	2000
WABOU Soil ROD	2002
NFA for Site OT019	2002
First Five (5)-Year Review of groundwater IRAs	2003
Groundwater extraction initiated at Site LF007	2004
Site Closeout for Site RW013	2004
Category IV No Further Remedial Action Planned Consensus Statement for Site SS041	2005
Site Closeout for Site SD042	2005
NEWIOU Soil, Sediment, and Surface Water ROD	2006
NFA for Sites FT002, OT010, W017	2006
Site Closeout for Site FT003	2007
Site Closeout for Site SD045	2007
Second Five (5)-Year Review of groundwater IRAs	2008
Site Closeout for Site SD001	2010
Basewide Groundwater Focused FS	2011

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Milestone	Year(s)
Site ST018 Treatment Plant online	2011
Technical and Economic Feasibility Analysis	2012
Proposed Plan for Groundwater Cleanup	2012
Third Five (5)-Year Review of groundwater IRAs	2013
NFA for Site TU504	2013
Groundwater ROD	2014
NFA for Site SS041	2014
Proposed Plan for WABOU Soil ROD Amendment	2015
Proposed Plan for NEWIOU Soil, Sediment, and Surface Water ROD Amendment	2015
NFA for Site CG508 (POCO)	2015

Notes:

AFB = air force base

EIOU = East Industrial Operable Unit

ERA = environmental risk assessment

FFA = Federal Facility Agreement

FS = feasibility study

IRA = interim remedial action

IROD = interim record of decision

NEWIOU = North, East, West Industrial OU

NFA = No Further Action

NOU = North Operable Unit

OU = operable unit

POCO = petroleum-only contaminated

ROD = record of decision

WABOU = West/Annexes/Basewide Operable Unit

WIOU = West Industrial OU

TABLE 2

Summary of Investigations Performed

A Component of the Community Relations Plan Update, Travis Air Force Base, California

Investigation	Company	Year(s)
Preliminary assessment (Phase I)	Engineering Science, Atlanta, GA	1983
Remedial investigation (Phase II, Stage 1)	Roy F. Weston, Inc., West Chester, PA	1984–1986
Remedial investigation (Phase II, Stage 2)	Roy F. Weston, Inc., West Chester, PA	1987–1990
Remedial investigation, North and South Gas Stations (Phase II, Stage 1)	Roy F. Weston, Inc., West Chester, PA	1989–1991
Preliminary assessment/site inspection TF33 Test Stand	Roy F. Weston, Inc., West Chester, PA	1991–1992
Resource Conservation and Recovery Act facility assessment	Roy F. Weston, Inc., West Chester, PA	1991–1992
Remedial investigation, EIOU	Roy F. Weston, Inc., West Chester, PA	1993–1995
Remedial investigation, NOU	Radian Corporation, Sacramento, CA	1993–1995
Remedial investigation, WIOU	Radian Corporation, Sacramento, CA	1994–1995
Soil gas survey	Hydro Geo Chem Inc., Tucson, AZ	1995
Remedial investigation, WABOU	CH2M HILL, Sacramento, CA	1995–1997
Site SS015 investigation	CH2M HILL, Sacramento, CA	1999
Site FT005 investigation	CH2M HILL, Sacramento, CA	1999
Storm Sewer System III investigation	CH2M HILL, Sacramento, CA	2000
Vapor intrusion assessment	CH2M HILL, Sacramento, CA	2008–2009
Site DP039 data gap investigation	CH2M HILL, Sacramento, CA	2008–2010
Site ST027B characterization investigation	CH2M HILL, Sacramento, CA	2009
Site SS014 data gap investigation	CH2M HILL, Sacramento, CA	2009
Site SS030 data gap investigation	CH2M HILL, Sacramento, CA	2009
Site TA500 characterization investigation	SHAW Environmental, Inc., Concord, CA	2009
Site SD036 data gap investigation	CH2M HILL, Sacramento, CA	2010
Site SD037 data gap investigation	CH2M HILL, Sacramento, CA	2010
Site SS015 data gap investigation	CH2M HILL, Sacramento, CA	2010
Site SS016 data gap investigation	CH2M HILL, Sacramento, CA	2010
Natural attenuation assessment	CH2M HILL, Sacramento, CA	2010
Site LF007C data gap investigation	CH2M HILL, Sacramento, CA	2011
Aerobic chlorinated co-metabolism enzyme study	CH2M HILL, Sacramento, CA	2012
Site SS029 investigation	TriHydro Corporation, Concord, CA	2012–2013
Site CG508 data gap investigation	CH2M HILL, Sacramento, CA	2014
Site ST028 data gap investigation	CAPE, Norcross, GA	2015

TABLE 2

Summary of Investigations Performed

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Investigation	Company	Year(s)
Site SD034 data gap investigation	CH2M HILL, Sacramento, CA	2015
Site ST032 data gap investigation	CAPE, Norcross, GA	2015
Site TA500 data gap investigation	CH2M HILL, Sacramento, CA	2015
Site SD031 soil remedial investigation	CH2M HILL, Sacramento, CA	2016–Ongoing
Sites SD033, SD043, and SS046 data gap investigation	CH2M HILL, Sacramento, CA	2016–Ongoing
POCO investigation for Oil/Water Separators OW040, OW047, OW048, OW049, OW050, OW051, OW052, OW053, OW054, OW055, OW056, and OW057	CH2M HILL, Sacramento, CA	2016–Ongoing

Notes:

EIOU = East Industrial Operable Unit

NOU = North Operable Unit

POCO = petroleum-only contaminated

WABOU = West/Annexes/Basewide Operable Unit

WIOU = West Industrial OU

TABLE 3

Summary of Response/Remedial Actions Implemented

A Component of the Community Relations Plan Update, Travis Air Force Base, California

Response/Remedial Action	Year(s)
11,000 gallons of JP-4 jet fuel recovered after pipeline failure at JFSA-2	1985–1986
5,000 gallons of JP-4 jet fuel recovered after pipeline failure at JFSA-3	1990
23 underground storage tanks removed; approximately 240 cubic yards of contaminated soil removed and treated	1986–2000
Soil excavation at Site TA500; approximately 45 cubic yards of contaminated soil removed and disposed of offsite	1992
Recovered floating product from JFSA-1 (Fuel Storage Area G, Site SS014)	1993–2005
GET at Site SS016	1995–Ongoing
Recovered floating product from Site ST032	1998–2002
Recovered floating product from Site SD034	1998–Ongoing
GET at Sites FT005, SS029, and SS030	1998–Ongoing
Removed 144 cubic yards of pesticide-contaminated soil at the Cypress Lakes Golf Course maintenance yard	2000–2001
GET at Sites FT004 and SD031	2000–2009
GET at Sites SD033, SD034, SS035, SD036, SD037, SS041, SD043, and DP039	2000–2010
GET at Site LF008	2001–2008
Implemented the final soil remedy at Site LF007 (Phase 1 Remedial Action via Wetlands Mitigation, Landfill Capping, Debris Removal, and CAMU Construction)	2001–2002
Implemented the final soil remedy at Site RW013 (soil and debris removal [66 cubic yards])	2002–2003
Site SS041 remedial action performed via soil excavation (49 cubic yards)	2003
Site SS015 remedial action performed via soil excavation (227 cubic yards)	2003
Implemented the final soil remedy at Site LF007 (Phase 2 Remedial Action via CAMU Construction)	2003
Implemented the final soil remedy at Site LF008 (soil removal [3,370 cubic yards])	2003
Implemented the final soil remedy at Site SD042 (soil removal [84 cubic yards])	2003
Implemented the final soil remedy at Site RW013 (soil removal [66 cubic yards])	2003
GET at Site LF007C	2004–Ongoing
Implemented the final soil remedy at Sites SD045, FT003, and FT004 (soil excavation [16,470 cubic yards])	2007
CAMU Completion	2007
Selected groundwater monitoring network and implemented final groundwater remedy of MNA at Sites ST027A and ST028	2008
Implemented the final soil remedy at Sites SD001 and SD033 (sediment excavation [710 cubic yards])	2009
Selected groundwater monitoring network and implemented final groundwater remedy of MNA at Sites SS014 and ST032	2011
Implemented the final soil remedy at Site FT005 (soil removal [12,212 cubic yards])	2011–2012
GET at Site ST018	2011–Ongoing

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Summary of Response/Remedial Actions Implemented

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Response/Remedial Action	Year(s)
Site SS030 GET system RPO via GET expansion	2013–2015
Site LF007C GET system RPO	2013–2014
Implemented the final groundwater remedy at Sites SD036 and SD037 (EVO injection combined with enhanced attenuation)	2014–2015
Implemented the final groundwater remedy at Site SS015 (EVO injection combined with enhanced attenuation)	2014–2015
Implemented the final groundwater remedy at Site SS016 (bioreactor and GET system optimization)	2014–2015
Site ST018 RPO via GET expansion	2014–2015
Selected groundwater monitoring networks and implemented final groundwater remedy of MNA at Sites FT004, LF006, LF007B, LF007D, LF008, ST027B, SD031, SD033, SS035, and SD043	2015
Implemented the final groundwater remedy at Site SD034 (passive skimming and enhanced attenuation)	2015

Notes:

CAMU = corrective action management unit

EVO = emulsified vegetable oil

GET = groundwater extraction and treatment

JFSA = Jet Fuel Storage Area

JP = jet propellant

MNA = monitored natural attenuation

RPO= remedial process optimization

TABLE 4

Summary of Treatability Studies and Technology Demonstrations Performed
A Component of the Community Relations Plan Update, Travis Air Force Base, California

Response/Remedial Action	Year(s)
Site ST018 bioventing treatability study	1993
Two-phased extraction treatability study	1994
Evaluation of using bioslurping technology to recover light nonaqueous phase liquid	1996
Site ST018 intrinsic remediation treatability study	1996
Vacuum enhanced floating product recovery test at Site SD034	1998
Site DP039 vacuum dewatering treatability study	2000–2002
Site DP039 phytostabilization treatability study	1998–2005
Site SD036 vacuum dewatering treatability study	1999
Site SS015 in situ bioremediation of chlorinated solvents via vegetable oil injection treatability study	2000–2001
Site DP039 demonstration of installing a permeable reactive treatment wall via jet grouting	2002
Site DP039 bioreactor technology demonstration	2008–2013
Site SD036 EVO injection technology demonstration	2010–2013
Site SD037 EVO injection technology demonstration	2010–2013
Site SS015 EVO injection technology demonstration	2010–2013
Site SS016 bioreactor technology demonstration	2010–2013
Site DP039 EVO permeable reactive barrier technology demonstration	2010–2013
Site FT004 TOC dispersal method technology demonstration	2015–Ongoing
Site SD031 TOC dispersal method technology demonstration	2014–Ongoing
Site FT005 TOC dispersal distance technology demonstration	2015–Ongoing

Notes:

EVO = emulsified vegetable oil

TOC= total organic carbon